

Correspondence.

The Hot Winds.

To the Editor of the SCIENTIFIC AMERICAN:

Mr. Benjamin Hill, in the SCIENTIFIC AMERICAN of February 9, writing of the hot winds sometimes prevalent in the arid regions of the mid-continent, suggests a chain of lakes or large reservoirs from New Mexico or Colorado, across Oklahoma, as a preventive. It would be a great help if Mr. Hill could find water to fill them with. Like many others, Mr. Hill labors under the delusion that the hot winds are generated in Texas and New Mexico and sweep over large areas to the north of the scene of their inception.

This is incorrect. The winds cease to be hot as soon as the sun goes down. The wind may be hot on the south side of a field and only warm on the north side of it. The writer was riding along the highway one summer day. The line of demarkation between the heated strata of air below and the cooler above was plainly marked and struck about the breast or face, owing to the topography of the road. The sensation was decidedly "agueish."

The irrigation of a considerable area of the arid region, which is perfectly feasible by means of pumping plants, will practically end the hot winds.

C. M. DAVIS.

Hugoton, Kan., February 16, 1895.

The Mechanical Color Test.

To the Editor of the SCIENTIFIC AMERICAN:

In the article, "A Mechanical Color Test," published in your issue of February 23, from the facile pen of Dr. Marcus Benjamin, an injustice is unwittingly done to a publication of ours, "A Standard Dictionary of the English Language." This plan for a standard for colors so well described by Dr. Benjamin was conceived in 1891, not "early" in 1894, by the editor in chief of the dictionary, in the effort to give exact and practical definitions of the leading colors and their various tints and shades. The definitions given heretofore in dictionaries were found to be either vague or too technical to be of much advantage to the average consulter, as when defined by wave lengths. The plan was worked out partly in detail as early as 1892; then afterward it was perfected as described by your correspondent, he himself contributing able managerial help, and the professors in the physical department at Columbia College contributing great expert knowledge and wonderful patient and exhaustive labor. The entire work was done under agreement for the dictionary and in harmony with the plan previously agreed upon, this plan, with the tables, giving the exact analyses of 488 colors, with the solar spectra and sample colors printed with marvelous exactness by Messrs. Prang & Company, and covered by copyright. Having originated the idea and carried it to completion at the cost of some thousands of dollars, is it not simple justice that due credit be given?

FUNK & WAGNALLS COMPANY.

New York, March 1, 1895.

Wire Fence Telephones in Australia.

To the Editor of the SCIENTIFIC AMERICAN:

On perusing your journal of October 20, 1894, page 249, I noticed a paragraph headed "A Wire Fence Telephone Wanted," and deeming it probable that you would be interested to learn that some two years ago I satisfactorily utilized the top wire of the existing fences on this station for telephonic use, I have much pleasure in furnishing you with a few items of information. First of all, I may say that since my station was satisfactorily served by this inexpensive method (2s. 6d. per mile) of telephoning I have been inundated with letters asking particulars from all parts of Australia, and that at the present time there are many hundreds of miles of station fences throughout this and the neighboring colonies brought into requisition for the purpose.

Our climate, as you are aware, is very dry (average rainfall 8 to 9 inches); in consequence insulation is not such an important matter. On this property we have about 600 posts to the mile of fencing, the wire passing through an auger hole in the ordinary way; the rust that forms on the wire makes a sufficiently thick skin to insulate it from slight moisture. At the straining posts we file the rust off the wire at either side and tightly screw or key on a piece of clean wire to carry the current around the post; at knots or loop joints we make a continuous connection in the same way.

We use the ordinary long distance microphone transmitters at either end, with the dynamo call bells and receivers. In addition, we have a portable instrument, which can be attached to wire at any point when out on the run, and in this way can send messages to the homestead. Our longest service is 16 miles, but one run has a continuous service of 28 miles, and from my experience there is no reason why in a dry climate it could not be utilized on much longer lengths.

In conclusion, I may mention that I am an old subscriber to your journal, and should you deem the con-

tents of my letter worthy of notice, I shall be pleased to note it when some future copies come to hand.

E. AEGGLE.

Gunbower Station, Gunbower, Victoria, Australia.

WATER-TIGHT LINING FOR THE ELASTIC GORES OF BOOTS AND SHOES.

By the improvement represented in the accompanying illustration, a lining that is both yielding and water-tight is provided for the elastic gores of boots and shoes, and one which is designed to present a substantially smooth surface to the foot. The improvement has been patented by Thomas F. Marshall, 1460 Seventh Street, Oakland, Cal., in the United States, Canada and England, and other foreign patents are being applied for. In the illustration, Fig. 1 shows the application of the improvement in the leg and at the ankle and instep of a boot; Fig. 2 showing it applied on a shoe and Figs. 3 and 4 being cross sections representing the manner of attaching the lining. The side edges of the gore lining are united to the upper or the shoe lining by a bellows or accordion connection, the goring normally acting to maintain the bellows fold, while the lining yields when the goring is distended in putting on the boot or shoe. The lining and elastic are preferably united at the top at the center by a small strip of leather, or in a form of shoe where there are gores at each side of a central strip at the front of the upper, a single lining is used, with a fold at each side, and stitched at its center to the central strip. The lining, which passes from one side to the other of the elastic, may be brought out over the upper and sewed down on it, or it may be passed between the lining and the elastic goring on the inside of the uppers and sewed in with the uppers in the ordinary way. The legs of boots may also be narrowed by the insertion of gores with this lining at the top, and by



MARSHALL'S IMPROVEMENT IN BOOTS AND SHOES.

letting in elastic gores similarly lined at each side of the instep, any desired closeness of fit may be obtained, without causing any trouble in getting the boot on or off, and without lessening its water repellent properties, while the work of crimping is greatly reduced. The improvement is equally applicable to the strongest and the lightest boots or shoes, insuring dryness and warmth wherever goring is inserted.

Injuries to Workmen from Defective Machinery.

The law is settled beyond controversy that it is the duty of an employer to furnish a suitable and safe place for his employe to work, and suitable and safe appliances and machinery for him to work with, yet it is in the power of the employe to dispense with this obligation. When he assents to occupy the place prepared for him, and incur the dangers to which he will be exposed, having sufficient intelligence and knowledge to comprehend them, it is not a question whether such place might, with reasonable care and by reasonable expense, have been made safe. His assent has dispensed with the performance on the part of the employer to make it so. Obvious imperfections in machinery, existing at the time of the employment, cannot be made the basis of liability in favor of the employe.

The employer, however, is not exempt unless the employe knows, or ought to know, the danger to which he is exposed by working with or near defective machinery or appliances. In the absence of such knowledge the employe is not chargeable with negligence because he does not abandon his employment, and he cannot be said to have voluntarily exposed himself to such danger. It must appear that he not only knew, or had the means of knowledge, of the unsafeness of the place, appliances or machinery, but also that he knew, or ought to have known, of the danger to which he was himself personally exposed. The true test is whether he ought not to have comprehended it; that

is, whether an ordinarily prudent person of his age and experience, under like circumstances, would have appreciated the danger and risk. Of course, wherever the employe's means of information are equal to or greater than those of his employer, the latter will not be liable in case of injury from the defect. But he must, when notified of defects, see that they are repaired, and cannot excuse himself for failure to have repairs made by showing that it was the duty of some employe to make them.

It is now almost equally well settled that if an employe who has knowledge of defects in the instrumentalities furnished for his use gives notice thereof to his employer, directly or indirectly through his foreman, superintendent, or other agent of the employer, who thereupon promises that they shall be remedied, the employe may recover for any injury caused by such defective appliances or machinery, at least where the master, directly or indirectly, requested him to continue in the work, and the injury occurred within the time in which the defects were promised to be remedied, and where the instrumentality, although defective, was not so imminently and immediately dangerous that a man of ordinary prudence would have refused longer to use it; under such circumstances his subsequent use of the defective instrumentality would not necessarily, or as a matter of law, make the employe guilty of contributory negligence, but it would be a question for the jury, whether, in continuing its use after he knew of the defect, he was in the exercise of ordinary care.

Many of the cases go even farther than this, but this is as far as it is necessary to go in a general consideration of the subject. Courts differ as to the grounds on which it should be placed. Some place it on the ground of policy and justice, upon a consideration of the unequal situation of employer and employe, or master and servant, to use the legal classification; others upon the ground that in such cases the facts rebut the presumption of a waiver on the part of the employe; others upon the ground of a contract on the part of the employer implied from the fact that if the servant continues in the service in the meantime, and until the defect is remedied, the employer and not the employe will assume the risk. It is not essential to attempt to determine which of these is the best or most logical reason for the rule, except to say that the last seems very forcible, especially where there is a request to the employe to continue in the service. It is sufficient that the rule has generally recommended itself to the judicial mind as founded in sound policy and common justice. If the emergencies of an employer's business require him temporarily to use defective machinery, we fail to see what right he has in law or natural justice to insist that it shall be done at the risk of the employe and not his own, when, notwithstanding the objection of the former to the condition of the machinery, he has requested or induced him to continue its use under a promise thereafter to repair it.—The Woodworker.

Raising Mongolian Pheasants in Massachusetts.

The Commissioners of Fish and Game in Massachusetts have decided, after considerable experiment, that the Mongolian pheasant is essentially adapted to the climate of Massachusetts, and preparations are being made to rear large numbers of these birds, to be liberated throughout the State. A number of adult birds have been obtained from Oregon, and the attempt at propagating pheasants will be made next summer. For carrying out this work nine large aviaries have been erected, which cover about two thousand square feet. These have been made vermin proof and equipped with everything necessary in the work. It is proposed to hatch the eggs under bantam fowls. Each female pheasant, it is believed, will lay from sixty to eighty eggs in a season, and it will be possible no doubt to raise many hundreds of pheasants during the season. It is also proposed to distribute breeding pheasants to any persons or clubs who will care for them properly and liberate the young birds when grown. A law, it is thought, will probably be enacted at the present session of the Massachusetts Legislature to provide for the special protection of Mongolian pheasants throughout the State.

Remarkable Increase of Shad in California Rivers.

The biennial report of the California Fish Commissioners states that some remarkably successful results have been obtained by stocking the rivers of that State which flow into the Pacific Ocean. In these rivers shad is now so plentiful that the fishermen are compelled to restrict the catch that they may keep the price of the fish at a profitable level. This great abundance of fish is the result of the liberating of 10,000 shad fry in the Sacramento River in the summer of 1871. The fry were hatched at Hull's Fishery, on the Hudson, and were transported in four 8 gallon milk cans across the continent. In the journey considerable difficulty was encountered in procuring pure water for the fish, and on account of the slow rate of traveling at that day. It required twenty-six days to make the journey.